Please amend claims 1, 5, 7, 9, and 11 as follows:

1. (Amended)   A system for detecting the level of liquid in a vessel, comprising:

a detector assembly including

a thermally conductive substrate,

a heater mounted on said substrate such that said heater is
    thermally coupled to the interior of the vessel, said
    heater being able to be actuated to add heat to the
    surface of the substrate thermally coupled to the
    interior of the vessel, and

a sensor mounted on said substrate in proximity to said heater
    such that discrete elevations of the interior of the
    vessel are thermally coupled to corresponding
    longitudinal portions of said sensor to generate an
    electrical signal defining a temperature signal, said
    correspondence being incrementally continuous such that
    the elevations corresponding to said portions of said
    sensor increase from one to the other of the ends of said
    sensor, said sensor being able to be actuated to detect
    the temperature in the vessel in proximity to the sensor
    indicative of the temperature detected by said sensor,
    said sensor having a vertical dimension sufficiently
    large such that said temperature signal will vary in
    proportion to said longitudinal portion of said sensor
    thermally coupled to the liquid;

a processor electrically connected to said sensor for
    receiving said temperature signal after actuation of said
    heater, said processor being programmed to use said
    temperature signal to calculate the elevation of the
    upper surface of the liquid in the vessel thereby to
    generate an electrical signal defining an elevation

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signal indicative of the elevation of the liquid upper
surface relative to the lower end of said sensor;

an interface electrically connected to said processor for
receiving said elevation signal for use as the basis for
communicating to the user the elevation of the liquid
upper surface; and

a power supply electrically connected to said heater, sensor,
processor, and interface, and wherein said sensor
comprises a variable resistance means wherein the
resistance to electrical conductivity of said sensor
varies in proportion to the temperature detected by it,
said temperature signal being of a magnitude proportional
to the magnitude of the resistance, said programming of
said processor comprising using said temperature signal
to measure said resistance of said sensor, said
programming further comprising using said resistance to
calculate the elevation of the upper surface of the
liquid.

5. (Amended)   A system for detecting the level of liquid in a
vessel, comprising:

a detector assembly including

a thermally conductive substrate,

a heater mounted on said substrate such that said heater is
thermally coupled to the interior of the vessel, said
heater being able to be actuated to add heat to the
surface of the substrate thermally coupled to the
interior of the vessel, and

a sensor mounted on said substrate in proximity to said heater
such that discrete elevations of the interior of the
vessel are thermally coupled to corresponding
longitudinal portions of said sensor to generate an

electrical signal defining a temperature signal, said
correspondence being incrementally continuous such that
the elevations corresponding to said portions of said
sensor increase from one to the other of the ends of said
sensor, said sensor being able to be actuated to detect
the temperature in the vessel in proximity to the sensor
indicative of the temperature detected by said sensor,
said sensor having a vertical dimension sufficiently
large such that said temperature signal will vary in
proportion to said longitudinal portion of said sensor
thermally coupled to the liquid;

a processor electrically connected to said sensor for
receiving said temperature signal after actuation of said
heater, said processor being programmed to use said
temperature signal to calculate the elevation of the
upper surface of the liquid in the vessel thereby to
generate an electrical signal defining an elevation
signal indicative of the elevation of the liquid upper
surface relative to the lower end of said sensor;

an interface electrically connected to said processor for
receiving said elevation signal for use as the basis for
communicating to the user the elevation of the liquid
upper surface; and

a power supply electrically connected to said heater, sensor,
processor, and interface, and wherein said sensor
comprises a potentiometer wherein the resistance to
electrical conductivity of said sensor varies in
proportion to the temperature detected by it, said
temperature signal being equal to said resistance, said
programming of said processor comprising using said
temperature signal to measure said resistance of said
sensor, said programming further comprising using said

resistance to calculate the elevation of the liquid upper
surface,

wherein said sensor comprises a potentiometer wherein the
resistance to electrical conductivity of said sensor
varies in proportion to the temperature detected by it,
said temperature signal being equal to said resistance,
said programming of said processor comprising using said
temperature signal to measure said resistance of said
sensor, said programming further comprising using said
resistance to calculate the elevation of the liquid upper
surface,

wherein said sensor is defined by an intermediate sensor, said
system further comprising: an upper sensor mounted on
said substrate adjacent to the upper end of said
intermediate sensor; and a lower sensor adjacent to the
lower end of said intermediate sensor, said upper and
lower sensors being thermally coupled to the interior of
the vessel to detect the respective temperatures therein
in proximity to said upper and lower sensors, said upper
and lower sensors being able to be actuated to produce
respective electrical signals defining temperature
signals indicative of the respective temperatures
detected by them, said upper and lower sensors each
comprising a potentiometer wherein the resistance to
electrical conductivity of each of said upper and lower
sensors varies in proportion to the respective
temperatures detected by them, said temperature signals
of said upper and lower sensors being equal to said
respective resistance values thereof, said processor
being further programmed to calculate the distance
between said lower sensor and the liquid upper surface

according to the following equation:

$$l = \frac{R_i - R_{vp}}{R_{lq} - R_{vp}}$$

where l = longitudinal fraction of said intermediate
       sensor below said liquid upper surface;

R_i = resistance of said intermediate sensor;

R_{vp} = resistance of said upper sensor when exposed
       to vapor only; and

R_{lq} = resistance of said lower sensor when exposed
       to liquid only,

said processor being further programmed to calculate the
vertical component of "l" for use as the basis for said
generation of said elevation signal.

7. (Amended)   A system for detecting the level of liquid in a
vessel, comprising:

a detector assembly including

a thermally conductive substrate,

a heater mounted on said substrate such that said heater is
       thermally coupled to the interior of the vessel, said
       heater being able to be actuated to add heat to the
       surface of the substrate thermally coupled to the
       interior of the vessel, and

a sensor mounted on said substrate in proximity to said heater
       such that discrete elevations of the interior of the
       vessel are thermally coupled to corresponding
       longitudinal portions of said sensor to generate an
       electrical signal defining a temperature signal, said
       correspondence being incrementally continuous such that
       the elevations corresponding to said portions of said
       sensor increase from one to the other of the ends of said
       sensor, said sensor being able to be actuated to detect
       the temperature in the vessel in proximity to the sensor

indicative of the temperature detected by said sensor, said sensor having a vertical dimension sufficiently large such that said temperature signal will vary in proportion to said longitudinal portion of said sensor thermally coupled to the liquid;

a processor electrically connected to said sensor for receiving said temperature signal after actuation of said heater, said processor being programmed to use said temperature signal to calculate the elevation of the upper surface of the liquid in the vessel thereby to generate an electrical signal defining an elevation signal indicative of the elevation of the liquid upper surface relative to the lower end of said sensor;

an interface electrically connected to said processor for receiving said elevation signal for use as the basis for communicating to the user the elevation of the liquid upper surface;

a power supply electrically connected to said heater, sensor, processor, and interface, and wherein said sensor comprises a potentiometer wherein the resistance to electrical conductivity of said sensor varies in proportion to the temperature detected by it, said temperature signal being equal to said resistance, said programming of said processor comprising using said temperature signal to measure said resistance of said sensor, said programming further comprising using said resistance to calculate the elevation of the liquid upper surface,

wherein said sensor comprises a potentiometer wherein the resistance to electrical conductivity of said sensor varies in proportion to the temperature detected by it, said temperature signal being equal to said resistance,

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said programming of said processor comprising using said temperature signal to measure said resistance of said sensor, said programming further comprising using said resistance to calculate the elevation of the liquid upper surface,

wherein said sensor is defined by an intermediate sensor, said system further comprising: an upper sensor mounted on said substrate adjacent to the upper end of said intermediate sensor; and a lower sensor adjacent to the lower end of said intermediate sensor, said upper and lower sensors being thermally coupled to the interior of the vessel to detect the respective temperatures therein in proximity to said upper and lower sensors, said upper and lower sensors being able to be actuated to produce respective electrical signals defining temperature signals indicative of the respective temperatures detected by them, said upper and lower sensors each comprising a potentiometer wherein the resistance to electrical conductivity of each of said upper and lower sensors varies in proportion to the respective temperatures detected by them, said temperature signals of said upper and lower sensors being equal to said respective resistance values thereof, said processor being further programmed to calculate the distance between said lower sensor and the liquid upper surface according to the following equation:

$$ 1 = \frac{R_i - R_{vp}}{R_{1q'} - R_{vp'}} $$

Where 1 = number of increments between a lower end of said intermediate sensor and the liquid upper surface;

L = total number of increments between an upper end and said lower end of said intermediate sensor

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(any number of increments are possible, higher
number increases resolution of calculation and
the actual count is arbitrary and determined
only by resolution requirements);

R_i = resistance of said intermediate sensor;

R_{vp} = resistance of said upper sensor without scaling;

$R_{vp'}$ = resistance of said upper sensor at the observed
temperature when exposed to vapor only, scaled
by dividing by the total number of increments;
and

$R_{lq'}$ = resistance of said lower sensor at the observed
temperature when exposed to liquid only, scaled
by dividing by the total number of increments;

said processor being further programmed to calculate the

vertical component of "l" for use as the basis for said

generation of said elevation signal.

9. (Amended)   A system as set forth in claim 1, wherein said

heater is constituted by said sensor.

11. (Amended)   A system for detecting the level of liquid in a

vessel, comprising:

a detector assembly including a thermally conductive

  substrate,

a heater mounted on said substrate such that said heater is

  thermally coupled to the interior of the vessel, said

  heater being able to be actuated to add heat to the

  surface of the substrate thermally coupled to the

  interior of the vessel, and

upper, intermediate and lower sensors mounted on said

  substrate in proximity to said heater, said upper sensor

  being at a higher elevation relative to said lower

  sensor, said intermediate sensor being at an elevation

  between said upper and lower sensors, said upper and

lower sensors being thermally coupled to the interior of
the vessel to detect the temperature therein in proximity
to said upper and lower sensors, said upper and lower
sensors being able to be actuated to generate respective
electrical signals each defining a temperature signal
indicative of said temperatures detected by said upper
and lower sensors, said intermediate sensor being mounted
on said substrate such that discrete elevations of the
interior of the vessel are thermally coupled to
corresponding longitudinal portions of said intermediate
sensor to detect the temperature in the vessel in
proximity to the sensor, said correspondence being
incrementally continuous such that the elevations
corresponding to said portions of said intermediate
sensor increase from one to the other of the ends of said
intermediate sensor, said intermediate sensor being able
to be actuated to generate an electrical signal defining
a temperature signal indicative of the temperature
detected by said intermediate sensor, said intermediate
sensor having a vertical dimension sufficiently large
such that said temperature signal will vary in proportion
to said longitudinal portion of said intermediate sensor
thermally coupled to the liquid;

a processor electrically connected to each of said sensors for
receiving said temperature signals after actuation of
said heater, said processor being programmed to use said
temperature signals to calculate the elevation of the
upper surface of the liquid in the vessel thereby to
generate an electrical signal defining an elevation
signal indicative of the elevation of the liquid upper
surface;

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an interface electrically connected to said processor for
    receiving said elevation signal for use as the basis for
    communicating to the user the elevation of the liquid
    upper surface; and
a power supply electrically connected to said heater,
    intermediate sensor, lower sensor, upper sensor,
    processor, and interface, and
wherein said sensor comprises a potentiometer wherein the
    resistance to electrical conductivity of said sensor
    varies in proportion to the temperature detected by it,
    said temperature signal being equal to said resistance,
    said programming of said processor comprising using said
    temperature signal to measure said resistance of said
    sensor, said programming further comprising using said
    resistance to calculate the elevation of the liquid upper
    surface.

    Please add new claims 13-17 as follows:

13. (New) A system for detecting the level of liquid in a
vessel, comprising:
a detector assembly including a thermally conductive
    substrate;
a heater mounted on said substrate such that the heater is
    thermally coupled to the interior of the vessel, the
    heater being able to be actuated to add heat to the
    surface of the substrate thermally coupled to the
    interior of the vessel;
an elongated electrical resistance-type sensor mounted on the
    substrate in proximity to said heater such that discrete
    elevations of the interior of the vessel are thermally
    coupled to corresponding longitudinal portions of the

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sensor to generate electrical signal defining a
temperature signal at various elevations in the vessel,
the longitudinal portions being incrementally continuous
such that the elevations corresponding to the
longitudinal portions increase along a length of the
sensor, the sensor being able to be actuated to detect
the temperature in the vessel at discrete elevations of
the interior of the vessel at elevations where liquids in
the vessel are thermally coupled to the liquid;

a processor electrically connected to the sensor for receiving
the temperature signal after actuation of said heater,
the processor being programmed to use the temperature
signal to calculate the elevation of the upper surface of
the liquid in the vessel to generate a further electrical
signal defining an elevation signal indicative of the
elevation of the upper surface of the liquid; and

an interface electrically connected to said processor for
receiving said elevation signal to communicate to the
user the elevation of the upper surface of the liquid.

14. (New) The system of claim 13 wherein a power supply is
electrically connected to the heater, sensor, processor, and
interface, and wherein said sensor comprises a variable
resistance means wherein the resistance to electrical
conductivity of the sensor varies in proportion to the
temperature detected by it, the temperature signal being of a
magnitude proportional to the magnitude of the resistance, the
programming of said processor comprising using the temperature
signal to measure said resistance of the sensor, the
programming further comprising using the resistance to
calculate to calculate the elevation of the liquid upper
surface of the liquid.

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15. (New) The system of claim 1 wherein the variable resistance means is a potentiometer.

16. (New) A method of detecting the level of liquid in a vessel, comprising:

providing a thermally conductive substrate to the
    interior of a vessel to contain a liquid,

mounting a heater to the substrate such that the heater is
    thermally coupled to the interior of the vessel, the
    heater being able to be actuated to add heat to the
    surface of the substrate thermally coupled to the
    interior of the vessel;

mounting an elongated electrical resistance-type sensor the
    substrate in proximity to the a heater mounted on said
    substrate such that the heater is thermally coupled to
    the interior of the vessel, the heater being able to be
    actuated to add heat to the surface of the substrate
    thermally coupled to the interior of the vessel;

electrically connecting a processor to the sensor for
    receiving the temperature signal after actuation of said
    heater, the processor being programmed to use the
    temperature signal to calculate the elevation of the
    upper surface of the liquid in the vessel to generate a
    further electrical signal defining an elevation signal
    indicative of the elevation of the upper surface of the
    liquid; and

electrically connecting and interface to the processor for to
    communicate to the user the elevation of the upper
    surface of the liquid.

17. (New) The method of claim 16 wherein a power supply is electrically connected to the heater, sensor, processor, and interface, and wherein said sensor comprises a variable resistance means wherein the resistance to electrical conductivity of the sensor varies in proportion to the temperature detected by it, the temperature signal being of a magnitude proportional to the magnitude of the resistance, the programming of said processor comprising using the temperature signal to measure said resistance of the sensor, the programming further comprising using the resistance to calculate to calculate the elevation of the liquid upper surface of the liquid.